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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,385	12/21/2001	Joseph Meehan	US 010603	4892
24737	7590	07/10/2006	EXAMINER	
PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510			NGUYEN, DUNG X	
			ART UNIT	PAPER NUMBER
			2611	

DATE MAILED: 07/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/028,385

Applicant(s)

MEEHAN ET AL.

Examiner

Dung X. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 6 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 6, 10 - 14, 17 - 22 is/are rejected.
- 7) ☒ Claim(s) 7, 8, 15, and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

Response to Arguments

1. Applicant's arguments, filed on October 31, 2005 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of new found references..

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1, 2, 10, 17, and 20 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US patent # 6,483,884 B1), and further in view of Perreault et al. (US patent # 6,169,728 B1).

Regarding to claim 1, Shen et al. teaches a method for enhancing the signal reception of a digital wireless receiver, the method comprising the steps of:

- Extracting a preamble information from a plurality of incoming signals (see "N bits preamble in figure 4);
- Processing a first predetermined portion of the preamble information with a first antenna to produce a first preamble sequence (the first half of N bits preamble inputting in 404 in figure 4);
- Processing a second predetermined portion of the preamble information with a second antenna to produce a second preamble sequence (the second half of N bits preamble inputting in 402 in figure 4);

- Calculating a quality indicator for the first preamble received from the first antenna and the second preamble received from the second antenna (402, 404 in figure 4); and
- Selecting one of the first antenna and the second antenna having a better quality for subsequent reception of the incoming signal (406 of figure 4).

Shen et al. teaches the quality indicator is the received signal strength indicator (RSSI) instead of the claimed mean-square error (MSE). Prerreault et al. teaches that MSE may be used to replace RSSI as the quality indicator (column 4, lines 22 – 25, column 3, line 60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use MSE instead of RSSI as the quality indicator in the system taught by Shen et al. because MSE provides a better quality information (because error information is provided rather than signal strength information). Note the selection of antenna with lower MSE would be inherent because of better quality.

Regarding claim 2, Shen et al in view Prerreault et al. teaches calculating MSE from preamble. In order to calculate MSE, the comparison of the preamble with a predefined (known) preamble is inherent.

Regarding to claim 10, Shen et al. teaches a method for enhancing the signal reception of a digital wireless receiver, the method comprising the steps of:

- Receiving a plurality of incoming signal, each including header information; (see “N bits preamble in figure 4);
- Dividing the header information of the incoming signals to process the divided header information by a first antenna and a second antenna (see the first half of N bits preamble inputting to 404 and the second half of N bits preamble inputting to 402),
- Calculating (figure 4) the header information from the first antenna and the second antenna (402, 404) to obtain a quality comparison, and
- Selecting one of the first antenna and the second antenna having a better quality for subsequent reception of the incoming signals (column 3, lines 29 – 45).

Shen et al. teaches the quality indicator is the received signal strength indicator (RSSI) instead of the claimed mean-square error (MSE). Prerreault et al. teaches that MSE may be used to replace RSSI as the quality indicator (column 4, lines 22 – 25, column 3, line 60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use MSE instead of RSSI as the quality indicator in the system taught by Shen et al. because MSE provides a better quality information (because error information is provided rather than signal strength information). Note the selection of antenna with lower MSE would be inherent because of better quality. In order to obtain MSE, the comparison of the preamble with a predefined (known) preamble is inherent.

Regarding to claim 17, Shen et al discloses (figure 1 and 4):

- A first antenna for receiving the incoming signals; (antenna 0 in figure 1 or figure 2)
- A second antenna for receiving the incoming signals (antenna 1 in figure 1 or figure 2);
- A processing circuit for processing a preamble information of incoming signals, wherein a first predetermined portion of the preamble is applied to a first antenna and a second predetermined portion of the preamble is applied to a second to produce a plurality of processed signals (see “N bits preamble” in figure 4),
- Calculating a quality indicator form the processed signals (402, 404 in figure 4), and
- Selecting circuit for selecting one of the first antenna and the second antenna having a better quality for subsequent reception of the incoming signals (406 in figure 4).

Shen et al. teaches the quality indicator is the received signal strength indicator (RSSI) instead of the claimed mean-square error (MSE). Prerreault et al. teaches that MSE may be used to replace RSSI as the quality indicator (column 4, lines 22 – 25, column 3, line 60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use MSE instead of RSSI as the quality indicator in the system taught by Shen et al. because MSE provides a better quality information (because error information is

provided rather than signal strength information). Note the selection of antenna with lower MSE would be inherent because of better quality. In order to obtain MSE, the comparison of the preamble with a predefined (known) preamble is inherent.

Regarding to claim 20, Shen et al discloses (figure 1 and 4):

- A first antenna for receiving the incoming signals; (antenna 0 in figure 1 or figure 2)
- A second antenna for receiving the incoming signals (antenna 1 in figure 1 or figure 2);
- A processing circuit for processing a preamble information of incoming signals, wherein a first predetermined portion of the preamble is applied to a first antenna and a second predetermined portion of the preamble is applied to a second to produce a plurality of processed signals (see “N bits preamble” in figure 4),
- Calculating a quality indicator form the processed signals (402, 404 in figure 4), and
- Selecting circuit for selecting one of the first antenna and the second antenna having a better quality for subsequent reception of the incoming signals (406 in figure 4).

Shen et al. teaches the quality indicator is the received signal strength indicator (RSSI) instead of the claimed mean-square error (MSE). Prerreault et al. teaches that MSE may be used to replace RSSI as the quality indicator (column 4, lines 22 – 25, column 3, line 60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use MSE instead of RSSI as the quality indicator in the system taught by Shen et al. because MSE provides a better quality information (because error information is provided rather than signal strength information). Note the selection of antenna with lower MSE would be inherent because of better quality. In order to obtain MSE, the comparison of the preamble with a predefined (known) preamble is inherent.

3. **Claims 4, 5, 11, 19, and 22 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US patent # 6,483,884 B1) in view of Perreault et al. (US patent # 6,169,728 B1), and further in view of Popovic' (US patent # 6,567,482 B1).

Regarding claim 4, as followed by the limitations analyzed in claim 1, Shen et al. in view of Perreault et al. do not teach the claimed demodulating step. However, such step is well known and necessary to locate the preamble portion in the received signals in a wireless environment. Popovic' teach that, in order to locate the preamble, the received signals need to be demodulated (i.e. down- converted) from radio frequency to baseband (column 9, lines 31 – 46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Shen et al., Perreault et al., and Popovic' to perform the demodulating step so as to locate the preamble at the baseband.

Regarding claim 5, as followed by the limitations analyzed in claim 1, the limitations are analyzed in the same manner set forth as claim 4.

Regarding claim 11, as followed by the limitations analyzed in claim 10, the limitations are analyzed in the same manner set forth as claim 4.

Regarding claim 19, as followed by the limitations analyzed in claim 17, the limitations are analyzed in the same manner set forth as claim 4.

Regarding claim 22, as followed by the limitations analyzed in claim 20, the limitations are analyzed in the same manner set forth as claim 4.

4. **Claims 6, 7, 13, and 14 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US patent # 6,483,884 B1), Perreault et al. (US patent # 6,169,728 B1), and further in view of Werner et al. (US patent # 6,069,917).

Regarding claim 6, as followed by the limitations analyzed in claim 1, Shen et al in view Prerrault et al. do not teach that the selection of antenna is made based on the comparison of one of the MSE's to a predetermined threshold. However, such comparison is well known. Werner et

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al. teaches making a selection based on a comparison between the MSE and a predetermined threshold (column 5, lines 50 – 53).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to compare the MSE with a threshold so as to make the system perform above a desired quality defined by the predetermined threshold.

Regarding claim 7, as followed by the limitations analyzed in claim 6, the limitation is analyzed in the same manner set forth as claim 6.

Regarding claim 13, as followed by the limitations analyzed in claim 10, the limitation is analyzed in the same manner set forth as claims 6 and 7.

Regarding claim 14, as followed by the limitations analyzed in claim 13, the limitation is analyzed in the same manner set forth as claims 6 and 7.

5. **Claims 3, 12, 18, and 21 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Shen et al. (US patent # 6,483,884 B1), Perreault et al. (US patent # 6,169,728 B1), and further in view of Hirose et al. (US patent # 5,181,161).

Regarding claim 3, as followed by the limitations analyzed in claim 2, Shen et al. and Perreault et al. differ from the instant claimed invention that the does not specify the where in the predefine preamble sequence is known priori.

However, Hirose et al. discloses that wherein the predefine preamble sequence is known priori (column 3, lines 3 – 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Shen et al., Perreault et al., and Hirose et al. to provide a reference for the receiver to determine quality. rate and follow ability required to the filter (column 3, lines 30 – 34 of Hirose et al.).

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Regarding claim 12, as followed by the limitations analyzed in claim 10, the limitation is analyzed in the same manner set forth as claim 3.

Regarding claim 18, as followed by the limitations analyzed in claim 17, the limitation is analyzed in the same manner set forth as claim 3.

Regarding claim 21, as followed by the limitations analyzed in claim 10, the limitation is analyzed in the same manner set forth as claim 3

Allowable Subject Matter

6. **Claims 8 – 9 and 15 - 16 are objected** to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ikawa et al. (US patent # 5,960,336) discloses a data receiving apparatus.

Masuda (US patent # 5,781,592) discloses a selective diversity system.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung X. Nguyen whose telephone number is (571) 272-3010. The examiner can normally be reached on Monday through Friday from 8:00 AM to 17:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Fan, Chieh M. can be reached on (571) 272-3012. The fax phone numbers for this group is (571) 273-3021.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

DXN

July 06, 2006


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER